In response to the Restriction Requirement mailed December 31, 2002, Applicant hereby elects Group I, claims 1 to 33 and 40 with traverse.

The Group I claims 1 to 33 and 40 are directed to method that executes a genetic algorithm to identify a population of entities; the Group II claims 34 to 39 are directed to a high throughput screening method including a step of executing a genetic algorithm to identify a population of entities; and the Group II claim 41 is directed to a system comprising an executor that executes a genetic algorithm to identify a population of entities. The subject matter of all the claims is sufficiently related that a search of any one Group encompasses a search for the subject matter of the other Group. Section 803 of the MPEP states that "[i]f the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to distinct or independent inventions." All of the claims of the present application could be examined without serious burden in view of their close relationship. In order to avoid unnecessary delay and expense to the Applicant and duplicate examination by the Patent Office, it is respectfully requested that the restriction requirement be reconsidered and withdrawn.

Additionally, Claims 1 and 40 of Group I and claim 34 of Group II are drawn to the necessary methods conducted in the system of claim 41, the Group III claim. Hence claims 1, 40 and 34 are linking claims between Groups I and III and Groups I and II, respectively. If any of the linking claims are allowed, rejoinder of the divided inventions must be permitted. See MPEP §809 and §818.03(d).

For these reasons, and in order to avoid unnecessary delay and expense to the Applicant and duplicative examination by the Patent Office, it is respectfully requested that the Restriction Requirement be reconsidered and withdrawn and this Application be examined on its merits.

Respectfully submitted,

Philip D. Freedman
Reg. No. 24,163
Philip D. Freedman PC
Customer Number 25101
6000 Wescott Hills Way
Alexandria, Virginia 22315-4747
(703) 313-0171
Fax: (703) 313-9322
Email: tekesq@tekesq.com

Alexandria, Virginia
JAN 17, 2003

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please rewrite the specification, page 15, lines 1 to 3 as follows:

[Performance is expressed numerically as a catalyst turnover number or TON. TON is defined as the number of moles of aromatic carbonate produced per mole of Palladium catalyst charged. Duplicate experiments are averaged to give an average TON. The results are shown in TABLE 5.

TABLE 5]

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TABLE 5

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please rewrite claims 1, 3, 6 to 10, 14 and 40 as follows:

1 (amended). A method, comprising steps of:

(A) [synthesizing] forming a first population of mixture entities and detecting a catalytic property of each of said entities by a high throughput screening (HTS) method and

(B) executing a genetic algorithm based on said property of said entities to identify a second population of entities.

3 (amended). The method of claim 1, comprising randomly identifying said first population of entities prior to [synthesizing] forming said first population according to step (A).

6 (amended). The method of claim 1, further comprising generating a binary string representing variable parameters of entities, [synthesizing] forming said entities and selecting said first population from said entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

7 (amended). The method of claim 1, further comprising generating a binary string representing variable parameters of entities, [synthesizing] forming said entities, evaluating said [synthesized] entities for a desired property, weighting said entities according to an hierarchy of fitness of said property and selecting said first population as a sampling from said weighed entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

8 (amended). The method of claim 1, further comprising generating a binary

string representing variable parameters of entities, [synthesizing] forming said entities, evaluating said [synthesized] entities for a desired property, pairing said entities and (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

9 (amended). The method of claim 1, further comprising generating a binary string representing variable parameters of entities, [synthesizing] forming said entities, evaluating said [synthesized] entities for a desired property and pairing said entities and (B) comprises executing a genetic algorithm comprising a uniform random crossover operator to produce a binary string representing said second population of entities.

10 (amended). The method of claim 1, further comprising generating a binary string representing variable parameters of entities, [synthesizing] forming said entities, evaluating said [synthesized] entities for a desired property, weighting said entities according to an hierarchy of fitness according to said property, selecting said first population as a sampling from said weighed entities and pairing said entities and step (B) comprises executing a genetic algorithm with a processor on said binary string to produce a binary string representing said second population of entities.

14 (amended). The method of claim 1, further comprising [synthesizing] forming said second population of entities by steps of:

providing a first reactant system at least partially embodied in a liquid; and

contacting the liquid with a second reactant system at least partially embodied in a gas, the second reactant system having a mass transport rate into the liquid wherein the liquid forms a film having a thickness sufficient to allow a reaction rate that is essentially independent of the mass transport rate of the second reactant system into the liquid [to synthesize said send population of entities].

40 (amended). A method of selecting a carbonylation catalyst, comprising:

(A) [synthesizing] forming a first population of prospective carbonylation catalyst entities and detecting a property of each of said entities; and

(B) executing a genetic algorithm based on said property of said entities to identify a second population of prospective carbonylation catalyst entities.